EFFECTIVENESS OF POWER YOGA ON PHYSICAL PHYSIOLOGICAL AND PSYCHOLOGICAL WELLBEING OF ORPHAN CHILDREN

SYNOPSIS

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CERTIFICATE

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I hereby declare that the **synopsis "EFFECTIVENESS OF POWER YOGA ON PHYSICAL PHYSIOLOGICAL AND PSYCHOLOGICAL WELLBEING OF ORPHAN CHILDREN**" Being submitted in partial fulfilment of the requirement for the degree of Doctor of Philosophy in Yoga under the Department of Yogic Sciences, Lakshmibai National Institute of Physical Education (LNIPE), Gwalior, Madhya Pradesh, India during the academic year 2022-2023.

It is a bona fide record of original work carried out under the supervision of **Dr. Ashish Phulkar and** the co-supervision of **Dr. Swarnakala Singh**. It has not been submitted in full or part to any other university or institute for a degree or diploma.

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ABSTRACT

This study investigates the effectiveness of Power Yoga as a holistic intervention to enhance the physical, physiological, and psychological well-being of orphan children in Jabalpur, Madhya Pradesh. Orphaned children often face heightened vulnerability to health challenges due to limited emotional, social, and physical support systems. Power Yoga, a vigorous form of yoga rooted in Ashtanga principles, combines dynamic postures, breath control, and mindfulness, offering potential benefits beyond physical fitness. A total of 90 orphaned children aged 13–18 years will be randomly assigned to experimental and control groups, with 45 participants in each. The experimental group will undergo a 12-week Power Yoga intervention comprising four weekly sessions of 45 minutes each. Pre and post-intervention assessments will measure psychological well-being, physical variables, including aerobic fitness, flexibility, and upper body strength, and physiological variables, including heart rate, blood pressure, and respiratory rate. The study adopts a randomized pre-test and post-test control design and uses one-way ANCOVA for data analysis. This research aims to provide empirical evidence on the role of structured Power Yoga practice in improving multiple dimensions of health in a marginalized population. The findings will contribute to yoga-based therapeutic strategies for underserved youth and support the integration of non-pharmacological, cost-effective wellness programs in child welfare settings.

Keywords- Power yoga, Physical, Physiological, Psychological wellbeing

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CHAPTER -I

Introduction

Yoga has long been recognized as a holistic practice that supports not only physical health but also emotional stability, mental clarity, and social connection. It provides a natural, non-invasive way to manage emotional and behavioural issues, reduce stress, and enhance overall well-being. By fostering mindfulness and inner awareness, yoga helps individuals cultivate peace, balance, and a deeper sense of harmony in everyday life. Among the many branches of yoga, Power Yoga stands out as a modern, physically intensive variation that has gained widespread popularity, especially in Western fitness communities.

Power Yoga, developed by Beryl Bender Birch, which is deeply rooted in the traditional Ashtanga Yoga system. It adopts key elements from Ashtanga, particularly its emphasis on vinyasa—a dynamic flow of poses synchronized with controlled breathing. However, unlike the fixed sequence typical of Ashtanga, Power Yoga allows for creative sequencing. This flexibility enables instructors to tailor sessions according to the needs of their students, making each class unique, energetic, and adaptable to various fitness levels.

The term “Power Yoga” was coined to reflect its vigorous, high-energy style. The "power" component refers not only to the physical intensity but also to the stamina, strength, and mental focus it develops. Power yoga practice engages the entire body. It is also effective in reducing stress, sharpening concentration, and encouraging emotional balance.

Modern Power Yoga classes tend to emphasize physical activity over spiritual or meditative practices. Because of its intensity, Power Yoga is best suited for individuals who already have a basic understanding of traditional yoga poses. It challenges practitioners by requiring them to hold their body weight in a variety of demanding positions, which enhances muscular strength, endurance, and body awareness. Beyond fitness, Power Yoga has meaningful applications in mental and physical health, especially for orphans who are often more susceptible to psychological challenges such as anxiety, depression, emotional instability, and feelings of hopelessness. Studies show they frequently lack the emotional support systems that are critical to developing resilience and coping skills. As such, they are in greater need of accessible and effective interventions.

Power Yoga helps reduce psychological distress, boost mood, and build emotional and physical strength. With growing awareness of its benefits, it can be a powerful tool for overall health.

RESEARCH QUESTION

A question intended to study or learn more about a certain area of interest is referred to as a research question. It specifically seeks to condense the research problem. So, the research question is stated as "**What will be the effect of Power Yoga Practice on** Physical, Physiological, and psychological well-being of orphan children of Jabalpur**?"**

STATEMENT OF THE PROBLEM

The purpose of this study is to investigate the effectiveness of Power Yoga on the Physical, Physiological, and psychological well-being of orphan children of Jabalpur.

OBJECTIVE OF STUDY

The aim of this study is to assess the physical, physiological, and psychological well-being of orphaned children residing in Jabalpur.

1. To compare the adjusted mean scores of physical fitness variables between the Power Yoga group and the Control group, considering their pre-test physical fitness scores as covariates.
2. To compare the adjusted mean scores of physiological variables between Group 1 (Power Yoga) and Group 2 (Control), using their pre-intervention physiological scores as covariates.
3. To compare the adjusted mean scores of psychological well-being between Group 1 and Group 2, using their pre-intervention psychological scores as covariates.

LIMITATIONS

1. The variation in interest, motivation, and other psychological factors of the subject during data collection may become limiting factors.
2. Personal habits, diet, and lifestyle of respondents will be considered limitations for the study.
3. Emotional state and previous training experiences will be considered limitations for the study.

DELIMITATIONS

1. The purpose of the study, (N=90) Orphan Children of Jabalpur MP

2. The age is from 13 to 18 years.
3. Subjects will be divided at random into two groups of (n=45) each
4. The duration of the training period will be 12 weeks, and the number of sessions per week will be confined to four.
5. Aerobic fitness, flexibility, Shoulder strength, heart rate, blood pressure, respiratory rate, and Autonomy, Environmental Mastery, Personal Growth, Positive relations with others, Purpose in life, and Self-acceptance are selected as dependent variables for this study

HYPOTHESIS

Ha(1): There is a significant difference in selected physical variables (Aerobic fitness, flexibility, and Upper body Strength) due to the effect of Power yoga practice.

Ha(2): There is a significant difference in selected physiological variables (Heart rate, Blood pressure, Respiration rate) due to the effect of Power yoga practice.

Ha(3): There is a significant difference in selected psychological well-being variables due to the effect of Power yoga practice.

Ho(4): There will be no significant effect of Power yoga on the physical, physiological, and psychological well-being of orphan children

DEFINITION AND EXPLANATION OF TERMS

Yoga
Styles The word "yoga" comes from the Sanskrit root "yuj" which means "to join" or "to yoke". Yoga is a practical aid, not a religious practice. Yoga is an ancient art based on a harmonizing system of development for the body, mind, and spirit. The continuous practice of yoga will lead to a sense of peace and well-being, and also a feeling of being at one with their environment. This is a simple definition about yoga (Iyengar, 2001).

Power Yoga
Power yoga is a generic term that may refer to any type of vigorous yoga exercise derived from Ashtanga Vinyasa Yoga.

Aerobic fitness
Aerobic fitness is a measure of the body's capacity to transport and utilize oxygen. Flexibility can be defined as the ability to perform movement with a greater range of motion or large amplitude.

Upper body Strength
Upper body strength refers to the muscular power of the arms, hands, and chest.

Heart rate
Heart rate (or pulse rate) is the frequency of the heartbeat measured by the number of contractions of the heart per minute (beats per minute, or bpm).

Blood Pressure
Systolic and diastolic blood pressure make up the two numbers in a blood pressure reading

Systolic - Systolic blood pressure, or the top number, is the amount of pressure experienced by the arteries while the heart is beating.

Diastolic - Diastolic blood pressure (the bottom number) is the amount of pressure in the arteries while the heart is resting in between heart beats.

Respiratory Rate
Respiratory rate is the number of breaths taken per minute.

Psychological wellbeing
Psychological well-being (PWB) is quite similar to other terms that refer to positive mental states, such as happiness or satisfaction.

SIGNIFICANCE OF THE STUDY

The present investigation aims to promote power yoga in a wide range.

1. Power yoga is one of the most widely used practices, which has a positive impact on physical, physiological, and psychological aspects. As much evidence reported, Power yoga has been recognized as a safe and effective practice for body and mind.
2. The study will be beneficial for detoxifying the body, burning extra calories, coping with various diseases, improving blood circulation, and enhancing concentration and posture.
3. The study will also be useful for improving the strength, flexibility, and stamina of the body.

CHAPTER -II

REVIEW OF LITERATURE

Sullivan et al., (2019). This study investigated the effects of two different types of yoga on affect and salivary cortisol levels in college women. (n=33) women aged 18–30 years each completed 1-hour sessions of power yoga and stretch yoga. Measures of affect and salivary cortisol were assessed before, during, and after each session. Participants perceived power yoga to be more pleasurable and energizing. Salivary cortisol significantly decreased after both yoga sessions.

Singh & Singh, (2017) reviewed the secondary data to investigate the improvement health health-related physical fitness (Cardiorespiratory, Muscular strength and endurance, Flexibility, Body composition). Types of yoga (Hatha Yoga, Vinyasa, Ashtanga, Power Yoga, Hot Yoga, Restorative Yoga) which increase the health and fitness of individuals and society in the modern age. Ashtanga, Power yoga emphasizes strength and endurance through a vigorous series of asanas. Unlike Ashtanga, however, postures are performed in no particular order. In Power yoga, there is less emphasis on the subtleties of each posture. Yoga and health-related physical fitness is an integral part of our lifestyle. It removes the impurities from the level of mind, health fitness and unites everything with the spirit. Modern Yoga exercises to improve physical fitness and strengthen the muscles of the body of all the various benefits of yoga are not limited to this only, but also to work to improve and develop the various components of the body.

Nins Peter, (2016) studied the effects of yoga, power yoga, and exercise on the physical, physiological, biochemical, hematological, and psychological variables of college women students. In this study (N=60), women were randomly selected from Euphrasia Training College, Kerala, and divided into four groups of fifteen each (n=15). Group I underwent yoga practices. Group II underwent power yoga practice, Group III underwent Pilates exercises, and Group IV was the control group. Training period: 12 weeks, 3 days a week. The dependent variables selected for the study were flexibility, muscular endurance, resting pulse rate, and vital capacity. Total cholesterol, triglycerides, blood sugar, blood urea, self-confidence, and anxiety. The data obtained from the experimental period group before and after the experimental period were statistically analyzed with a dependent t-test and ANCOVA. The result found that Pilates is better than yoga practices. Power yoga and the control group developed physical, physiological, biochemical, hematological, and psychological variables.

Purohit et al. (2016) conducted a randomized controlled study to examine the effect of yoga on EUROFIT physical fitness parameters in adolescents dwelling in an orphan home. A total of 72 apparently healthy adolescents participated from an orphanage. They were randomized and allocated into two groups as Yoga group (n = 40; 14 girls, 26 boys and Wait-List Control group (WLC) (n = 32, 13 girls, 19 boys and The Yoga group (YG) underwent 3 months of Yoga program in a schedule of 90 mins/day and 4 days/week, whereas the WLC group underwent day-to-day activities. The European physical fitness test battery (EUROFIT) was assessed in both groups at the beginning and end of the program. The results suggested that the 3-month Yoga program was found useful for the young orphan adolescents in improving their physical fitness.

Anna Mróz at. al, (2012) studied the changes in physiological and biomechanical variables in women practicing the Power Yoga system. The study included 24 untrained women who volunteered to participate in a half-year experiment. The analysis focused on 12 women who participated in the classes until the experiment ended. The Wingate test was used to evaluate anaerobic capacity. To measure the functional state of the vestibular organ, the authors used a stable graphic method. Measurements of power output in the lower limbs and the height of elevation of the center of mass in CMJ jumps were carried out using a dynamometric platform. The 6 months of training in the Power Yoga system considerably improved the height of CMJ jumps from 0.276 ± 0.048 m to 0.308 ± 0.038 m ($p<0.05$). These changes were not accompanied by significant increases in maximum power output (1286 ± 200 W and 1327 ± 2134 W before and after, respectively; $p>0.05$). Practicing Power Yoga does not induce changes in the anaerobic capacity and the functional state of the vestibular organ in women.

Buśko & Rychlik, (2006) studied the Changes of the maximal muscle torque in women training Power Yoga (Ashtanga Vinyasa). (n=12) untrained female subjects took part in the study. They practiced Power Yoga twice a week for six months. Muscle torque measurements in static conditions were performed on two dates: before the commencement of Power Yoga training and after its completion. 10 muscle groups were studied: flexors and extensors of the trunk, as well as flexors and extensors of the shoulder, elbow, hip, and knee. Main findings. The differences between muscle torque values for flexors and extensors of the shoulder, elbow, and hip, as well as flexors of the knee on the right side of the body, were statistically significant between the 1st and 2nd measurement. This study concluded that Power Yoga training caused significant changes of the maximal muscle torque in females after six months, but the changes in the muscle topography were also significant.

Balasubramanian & Pansare, (1991) Aerobic Power (VO2 max) and anaerobic power were estimated in medical students before and after 6 weeks of yogic training. A significant increase in aerobic power and a significant decrease in anaerobic power were observed. This may be due to the conversion of some of the Fast Twitch (FT) muscle fibers into Slow Twitch fibers (S.T.) during yogic training. and after six weeks of yogic training. A significant increase in aerobic power and a significant decrease in anaerobic

power were observed. This may be due to the conversion of some of the Fast Twitch (FT) muscle fibers into Slow Twitch fibers (S.T.) during yogic training.

CHAPTER -III

SELECTION OF SUBJECTS

Ninety children (N=90) aged 13 to 18 years shall be randomly selected Orphan School of Jabalpur, MP

All subjects shall randomly be assigned into one intervention group (Power Yoga) and one control group each consist of 45 Children.

The experimental group shall be treated with selected method of Power yoga which is for a duration span 4 days every week for 12 weeks (3months).

CRITERION MEASURES

All subjects shall be randomly selected after the following criterion measures

Inclusive criteria –

1. Physical, physiological, and psychological well-being of orphan children
2. Healthy Subjects in the age group between 13 to 18 years
3. Only healthy children will be included

Exclusive criteria –

1. Physical deformities and Psychiatric disorders patients.
2. Chronic disease patient
3. Daily yoga practitioners
4. Sport girls

A pre-test-post-test control design will be used for the present study. Pre-test and post-test will be given to the experimental group. The training period will be 3 months, comprising of four sessions per week, and each session will take one hour

MATERIALS & METHODOLOGY

Total number of study subjects: 90 sample size

Mode of selection of the subject

The participants of the study are selected based on the following inclusion and exclusion criteria.

Research Design –

The Pretest-Posttest Randomized Group Design.

The research design is the framework for conducting research. A pretest and posttest design it led me to formulate the research problem and create the objective of the stud

Independent Variable -

Selected intervention **(Power yoga**)

Dependent Variables

1. Physical variables (Aerobic fitness, Flexibility, Upper body Strength)
2. Physiological variables (Heart Rate, blood Pressure, Respiratory rate)
3. Psychological wellbeing (Autonomy, Environmental Mastery, Personal Growth, Positive relations with others, Purpose in life, Self-acceptance)

Materials and Tools

<table>
<tr><th>S. No.</th><th>Variables</th><th>Tools</th></tr>
<tr><td rowspan="4">1.</td><td>Physical Variables</td><td></td></tr>
<tr><td rowspan="3">Aerobic fitness
Flexibility
Upper body Strength</td><td>12-minute Cooper Walk /run test</td></tr>
<tr><td>Sit and reach</td></tr>
<tr><td>Modified Push-ups</td></tr>
<tr><td rowspan="4">2.</td><td>Physiological Variables</td><td></td></tr>
<tr><td rowspan="3">Heart rate
BP (systolic and diastolic)
Respiratory rate</td><td>Stethoscope</td></tr>
<tr><td>Sphygmomanometer</td></tr>
<tr><td>Stopwatch</td></tr>
<tr><td rowspan="2">3.</td><td>Psychological Wellbeing Variable</td><td rowspan="2">Ryff’s Psychological Well-Being Scale (50-item Questionnaire)</td></tr>
<tr><td>Sub-Scales:

Autonomy
Environmental Mastery
Personal Growth
Positive relations with others
Purpose in life
Self-acceptance</td></tr>
</table>

Control group

The control group will follow their daily routine, post post-collection will be collected after 12 weeks of pre-data collection

Experimental group/ Study group

The experimental group will be given an intervention of Power Yoga. The intervention will be given for 12 weeks, 45 minutes daily for 4 days a week, with regular standardized protocol, as shown in the table.

Intervention Yoga

Power Yoga	Weekly 4 days	45 minutes

Setting - The study will be conducted in the Orphan School of Jabalpur, Madhya Pradesh

Statistical technique

To understand the levels of Physical variables (Aerobic fitness, Flexibility, Upper body Strength, and flexibility), physiological variables (heart rate, blood pressure, and breathing rate), and Psychological wellbeing in orphaned children, descriptive statistics will be used. To compare the average pre- and post-test results between the Power Yoga group and the Control group, while taking their initial physical scores into account, a One-Way ANCOVA (Analysis of Covariance) will be conducted.

NOTE: According to the nature of the data appropriate statistical technique will be used to analyse the result.

EXPECTED OUTCOME

It is expected that the Power Yoga intervention will result in statistically significant improvements in the experimental group across all three domains—physical, physiological, and psychological—compared to the control group. Specifically, participants are likely to show enhanced aerobic capacity, flexibility, and Physical variables (Aerobic fitness, Flexibility, Upper body Strength), improved physiological parameters, and better scores in psychological well-being. These outcomes would validate the efficacy of Power Yoga as a comprehensive tool for promoting holistic health in orphaned children and may inform policy decisions for incorporating yoga into child care institutions and rehabilitation programs.

References

1. Singh, R., & Singh, V. (2017). Comparison Of Batting Skills In Terms Of the Influence Of Intelligence Of Cricket Players.
2. Nins Peter, P. (2016). Effects of yoga, power yoga and pilates on selected physical, physiological, biochemical, haematological, and psychological variables of college women students. *University*.
3. Purohit, S. P., Pradhan, B., & Nagendra, H. R. (2016). Effect of yoga on EUROFIT physical fitness parameters on adolescents dwelling in an orphan home: A randomized control study. *Vulnerable Children and Youth Studies*, *11*(1), 33–46.
4. Anna Mróz, Krzysztof Buśko & Bożena Wit (2012). Changes in physiological and biomechanical variables in women practicing the Power Yoga system.
5. Buśko, K., & Rychlik, R. (2006). *Changes of the maximal muscle torque in women training Power Yoga (Astanga Vinyasa)*.
6. Balasubramanian, B., & Pansare, M. S. (1991). Effect of yoga on aerobic and anaerobic power of muscles. Indian Journal of Physiology and Pharmacology, 35(4), 281–282. Beryl Bender Birch. (2010). Power Yoga: The Total Strength and Flexibility Workout. Simon and Schuster.Nins Peter, P. (2016). Effects of yoga power yoga and pilates on selected physical physiological biochemical haematological and psychological variables of college women students. University. https://shodhganga.inflibnet.ac.in:8443/jspui/handle/10603/134597
7. Kumar, V., & Arumugam, S. (2018). Impact of Yoga Asana Practices on Abdominal Strength among Football Players. Ganesar College of Arts and Science, 176.
8. Sharma, S., Rajesh, S., & Subramanya, P. (2017). Orphan children and yogic approach. *International Journal of Yoga - Philosophy, Psychology and Parapsychology*, *5*(2), 64. https://doi.org/10.4103/ijny.ijoyppp_21_17
9. Zok, A., Matecka, M., Bienkowski, A., & Ciesla, M. (2024). Reduce stress and the risk of burnout by using yoga techniques. Pilot study. Frontiers in Public Health, 12, 1370399. https://doi.org/10.3389/fpubh.2024.1370399
10. Volovyk, N., & Pidvalna, O.2024). Fitness-yoga – as an effective means of improving the physical and mental health of children and youth. Scientific Journal of National Pedagogical Dragomanov University. Series 15. Scientific and Pedagogical Problems of Physical Culture

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